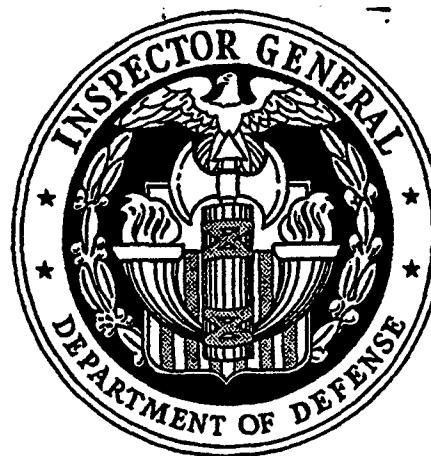


# Audit

# Report



AIR FORCE RESEARCH LABORATORY PREPARATION  
FOR YEAR 2000

Report No. 99-003

October 5, 1998

Office of the Inspector General  
Department of Defense

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### **Acronym**

**AFRL** Air Force Research Laboratory



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202

October 5, 1998

**MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE  
(FINANCIAL MANAGEMENT AND COMPTROLLER)**

**SUBJECT: Audit Report on Air Force Research Laboratory Preparation for Year 2000  
(Report No. 99-003)**

We are providing this audit report for your information and use. This report is one of a series, the primary purpose of which is to provide the DoD Chief Information Officer and other senior DoD managers with an independent assessment of DoD progress related to its year 2000 efforts.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Raymond A. Spencer at (703) 604-9071 (DSN 664-9071) or Mr. Roger H. Florence at (703) 604-9067 (DSN 664-9067). See Appendix C for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in black ink that reads "Robert J. Lieberman".

Robert J. Lieberman  
Assistant Inspector General  
for Auditing

## **Office of the Inspector General, DoD**

**Report No. 99-003**  
(Project No. 8AB-0030.00)

**October 5, 1998**

### **Air Force Research Laboratory Preparation for Year 2000**

#### **Executive Summary**

**Introduction.** This report is one of a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts in addressing the year 2000 computing problem. Information technology systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve electronic date storage and reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. As a result of the ambiguity, computers, associated systems, and application programs that use dates to calculate, compare, and sort could generate incorrect results when working with years after 1999.

**Audit Objectives.** The overall audit objective was to determine whether the Air Force Research Laboratory is adequately preparing its information technology systems to resolve date-processing issues for the year 2000 computing problem. Specifically, the audit determined whether the Air Force Research Laboratory has complied with the Air Force Materiel Command Year 2000 Program Management Plan.

**Audit Results.** The Air Force Research Laboratory had established a process for determining whether the laboratory has a potential year 2000 impact and was actively determining its systems' vulnerability to the date-processing problem. However, the Air Force Research Laboratory had not met the required timeframes of the Air Force Materiel Command Year 2000 Program Management Plan for identifying and resolving any year 2000 impact for infrastructure items. The Air Force Research Laboratory officials had emphasized the importance of identifying and resolving potential year 2000 problems, identified automated information systems that needed year 2000 corrections, begun conducting a comprehensive infrastructure inventory, begun reviewing ongoing research efforts for year 2000 concerns, and modified contracts for year 2000 compliance, where applicable. As a result, although the Air Force Research Laboratory was somewhat behind overall DoD schedule guidelines for the infrastructure items, an effective effort was under way for minimizing any year 2000 date-processing problem.

**Management Comments.** We provided a draft of this report on July 27, 1998. Although not required to comment, the Chief Information Officer, Air Force Research Laboratory, agreed with the report and suggested minor, which were incorporated in this final report. See Part III for the complete text of the comments.

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## **Part I - Audit Results**

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## Audit Background

**Year 2000.** The year 2000 problem is the term most often used to describe the potential failure of information technology systems to process or perform date-related functions before, on, or after the turn of the century. The year 2000 problem is rooted in the way that automated information systems record and compute dates. For the past several decades, systems have typically used two digits to represent the year, such as "98" representing 1998, to conserve on electronic data storage and to reduce operating costs. With the two-digit format, however, the year 2000 is indistinguishable from 1900. As a result of the ambiguity, computers and associated systems and application programs that use dates to calculate, compare, and sort could generate incorrect results when working with years following 1999. Calculation of year 2000 dates is further complicated because the year 2000 is a leap year, the first century leap year since 1600, and the computer systems and applications must recognize February 29, 2000, as a valid date.

Because of the potential failure of computers to run or function throughout the Government, the President issued an Executive Order, "Year 2000 Conversion," February 4, 1998, making it policy that Federal agencies ensure that no critical Federal program experiences disruption because of the year 2000 problem and that the head of each agency ensure that efforts to address the year 2000 problem receive the highest priority attention in the agency.

**DoD Year 2000 Management Strategy.** In his role as the DoD Chief Information Officer, the Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued the final version of the "DoD Year 2000 Management Plan" in April 1997. The DoD Year 2000 Management Plan provides the overall DoD strategy and guidance for inventorying, prioritizing, repairing or retiring systems, and monitoring progress. The DoD Year 2000 Management Plan states that the DoD Chief Information Officer has overall responsibility for overseeing the DoD solution to the year 2000 problem. Also, the DoD Year 2000 Management Plan makes the DoD Components responsible for the five-phase year 2000 management process. The "DoD Management Plan, For Signature Draft Version 2.0," June 1998, accelerates the target completion dates for the renovation, validation, and implementation phases. The new target completion date for implementation of mission-critical systems is December 31, 1998.

In a January 20, 1998, memorandum for the heads of executive department and agencies, the Office of Management and Budget established a new target date of March 1999 for implementing all corrective actions for the renovation phase and January 1999 for the validation phase.

The Secretary of Defense issued the memorandum "Year 2000 Compliance" on August 7, 1998, and stated that the year 2000 computer problem is a critical national Defense issue. He also stated that the Military Departments will be responsible for ensuring that the list of mission-critical systems under their respective purview is accurately reported in the DoD year 2000 database.

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effective October 1, 1998. The DoD Components must report and explain each change in mission-critical designation to the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) within 1 month of the change.

The Deputy Secretary of Defense issued the memorandum "Year 2000 (Y2K) Verification of National Security Capabilities" on August 24, 1998. The memorandum states that each Military Department must certify that it has tested the information technology and national security system year 2000 capabilities of its respective Component's systems in accordance with the DoD Management Plan.

**Air Force Materiel Command Year 2000 Program Management Plan.** The Air Force Materiel Command Year 2000 Program Management Plan (the Management Plan) implements the DoD Year 2000 Management Plan. The Management Plan establishes a five-phase approach for automated information systems and a three-phase approach for infrastructure systems. The Management Plan provides the Air Force strategy and management approach to satisfying the year 2000 problem. The Management Plan discusses each of the five phases identified in the DoD Year 2000 Management Plan and establishes Air Force activity target completion dates for each phase for automated information systems. The five phases for automated information systems are as follows:

- Phase I - Awareness. Familiarize Air Force personnel with the possible year 2000 impact, define the year 2000 problem, decide the overall approach, and obtain high-level management support. Awareness was to be accomplished through memorandums, articles in Air Force publications, e-mails, status briefings, site visits, messages, and other means as appropriate. Target completion of the awareness phase was June 30, 1997.
- Phase II - Assessment. Determine the impact of year 2000 on the organization's inventory, including hardware, software, and firmware contracts; develop acceptable solutions, estimate resource requirements; and develop activity contingency plans. Target completion of the assessment phase was October 31, 1997.
- Phase III - Renovation. Develop the actual correction of the year 2000 problems for each system. Target completion of the renovation phase was June 30, 1998.
- Phase IV - Validation. Test and verify the correctness of the renovated or replaced system. All systems must undergo the validation phase, including systems assessed as having no year 2000 impact. Target completion of the validation phase was September 30, 1998.
- Phase V - Implementation. Systems are considered fully operational after being certified as year 2000 compliant. Target completion of the implementation phase is December 31, 1998.

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The Management Plan also provides a three-phase approach for identifying year 2000 problems for infrastructure systems. The three phases are as follows:

- Phase I - Inventory. Develop an inventory of infrastructure systems and identify the mission risks. Target completion of the inventory phase was March 31, 1998.
- Phase II - Assessment. Determine the year 2000 compliance on the infrastructure systems inventoried. Target completion of the assessment phase was September 30, 1998.
- Phase III - Implementation. Implement the actual correction of the year 2000 problems for each system. Target completion of the implementation phase was May 31, 1999.

**Air Force Research Laboratory.** The Air Force Research Laboratory (AFRL) was established in October 1997 by the consolidation and reorganization of the four Air Force research laboratories (Wright Laboratory, Rome Laboratory, Armstrong Laboratory, and Phillips Laboratory) and other research organizations. The AFRL is composed of 10 directorates located at 10 locations throughout the United States. To identify the year 2000 impact on the AFRL, AFRL officials were using the Management Plan as the approach to assess and resolve its potential date-processing problem.

## Audit Objectives

Our primary audit objective was to determine whether AFRL is adequately preparing its information technology systems to resolve date-processing issues for the year 2000 computing problem. Specifically, the audit determined whether the AFRL has complied with the Management Plan. Appendix A describes the audit scope and methodology. Appendix B summarizes prior audit coverage.

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## **Status of the Air Force Research Laboratory Year 2000 Program**

The Air Force Research Laboratory (AFRL) had established a process for determining whether the laboratory has a potential year 2000 impact and was actively determining its systems' vulnerability to the date-processing problem. However, AFRL had not met the required timeframes in the Air Force Materiel Command Year 2000 Program Management Plan for identifying and resolving year 2000 impact for infrastructure items. The AFRL officials had emphasized the importance of identifying and resolving potential year 2000 problems, identified automated information systems that needed year 2000 corrections, had begun conducting a comprehensive inventory of infrastructure systems, had begun reviewing ongoing research efforts for year 2000 concerns, and were modifying contracts for year 2000 compliance, where applicable. As a result, although the AFRL was somewhat behind overall DoD schedule guidelines for the infrastructure items, an effective effort was under way for minimizing any year 2000 date-processing problem.

### **Awareness**

The AFRL had completed the awareness phase for automated information systems as required by the Air Force Materiel Command Year 2000 Program Management Plan (the Management Plan). The Management Plan required Air Force organizations to complete the awareness phase by June 30, 1997. The intent of the awareness phase is to make Air Force personnel aware of year 2000 concerns and demonstrate upper level management support in identifying the potential for exposure to year 2000 problems at Air Force organizations.

AFRL officials had properly informed personnel of year 2000 issues through memorandums, briefings, e-mails, messages, and other means. The Commander, AFRL, issued a memorandum on September 19, 1997, that emphasized the importance of addressing year 2000 impact at the laboratory. In the memorandum, the Commander established a Year 2000 Program Office that would be responsible for identifying and assessing all systems and infrastructure and establishing year 2000 representatives in each of the laboratory's directorates. In addition, the memorandum directed that all program managers review research programs to identify potential year 2000 problems, identify the year 2000 resolutions, and identify costs associated with resolving the year 2000 problems. The Commander, AFRL, reemphasized the importance of identifying and resolving potential year 2000 problems at the laboratory in a later memorandum issued on November 7, 1997.

## **Status of the Air Force Research Laboratory Year 2000 Program**

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### **Inventory and Assessment of Automated Information Systems**

The Management Plan states that during the assessment phase, all automated information systems will be inventoried and analyzed to determine the system's potential year 2000 impact, and a decision would be made on whether the systems should be retained, merged into another system, or terminated. The Management Plan also requires the development of a contingency plan that is based on the risk assessments to the year 2000 impact and actions to be taken if year 2000 corrections are not accomplished on time. In addition, the Management Plan requires the Year 2000 Program Manager to develop an estimate for the cost of making systems year 2000 compliant. The Management Plan required the assessment phase to be completed by October 31, 1997.

AFRL conducted an inventory of automated information systems and identified eight systems that needed to be assessed for a year 2000 impact. AFRL assessment of the eight automated information systems identified that all the systems had a year 2000 problem. Later, two automated information systems were fixed and certified, and the remaining systems were scheduled to be fixed by March 1999. AFRL reported that of the six automated information systems, three were mission essential and three were non-mission essential. AFRL reported that no additional cost would be associated with fixing the six automated information systems because the year 2000 corrections would be accomplished through normal system upgrades.

### **Inventory and Assessment of Infrastructure Systems**

The Management Plan provided different requirements for Air Force organizations in reviewing year 2000 potential problems for infrastructure systems. However, the Management Plan requires organizations to inventory, assess, and implement corrections for systems identified with year 2000 programs.

**Inventory of Infrastructure Items.** The AFRL conducted an initial inventory of hardware, software, firmware, and infrastructure systems in April 1998. The initial inventory included approximately 81,000 items of systems and equipment. While conducting the initial inventory, year 2000 directorate representatives also began assessing whether systems and equipment were year 2000 compliant, determining the system's mission criticality, and identifying costs associated with resolving any date-processing problems.

**Assessing Systems and Equipment for Year 2000 Impact.** The directorate representatives reported 81,000 systems and equipment, representing 80 percent of all systems and equipment, to the AFRL Year 2000 Program Manager in the initial inventory. Of the 81,000 systems and equipment reported, 12,100 systems and equipment were year 2000 compliant, 1,000 systems and equipment were non-compliant, and 68,000 systems and equipment still need to be reviewed for year 2000 compliance.

## Status of the Air Force Research Laboratory Year 2000 Program

**Mission Criticality.** The directorate representatives categorized systems and equipment on each system's importance to the laboratory's mission. Of the 81,000 systems and equipment, none were DoD mission critical. Of the 81,000 systems and equipment, 10,200 systems were mission essential, 14,500 systems were non-mission essential, 29,200 systems were mission impaired, and the remaining 27,100 systems still needed to be reviewed for mission criticality.

**Cost Associated With Year 2000.** The directorate representatives identified the cost associated with year 2000 compliance in the initial inventory. They reported that an estimated \$53,700 was needed to repair or replace systems, and that the estimated cost may increase.

The AFRL Year 2000 Program Manager required the directorate representatives to submit a complete inventory by June 30, 1998, and to submit assessments of the systems and equipment by September 30, 1998. The Program Manager indicated that, upon completion of the inventory, the directorate representatives and the Program Manager were to begin developing contingency plans based upon the assessments.

## **Assessment of Current Research Programs**

AFRL officials had taken actions to require the assessment of current research programs and their interfaces for the potential year 2000 impact. The Chief Information Officer directed the AFRL program managers and engineers to review existing contractual research efforts and potential system interfaces using an Air Force year 2000 compliance checklist. Program managers and engineers identified year 2000 compatibility issues and required contracting officials to modify the contracts to incorporate the appropriate year 2000 language.

## **Contracting**

The Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) issued a policy memorandum to the Secretaries of the Military Departments and the Directors of the Defense Agencies on "Acquisition of Year 2000 Compliant Information Technology (IT) and Bringing Existing IT into Compliance," December 18, 1997. The policy states that all information technology acquired by the Military Departments and Defense agencies must be year 2000 compliant. The memorandum requires that technical and contracting personnel review information technology contracts and other acquisition instruments to determine whether modifications to the contracts are necessary. The memorandum states that orders for information technology must not be placed on a contract or other acquisition instrument unless the information technology purchase is year 2000 compliant. The Air Force Materiel Command Year 2000 Program Management Plan, "Compliance and Certificate Strategy for Systems," states that systems currently in acquisition are

## **Status of the Air Force Research Laboratory Year 2000 Program**

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required to be year 2000 compliant. In April 1998, the Air Force Chief Information Officer issued guidance on year 2000 wording in information technology contracts.

In October 1997, the Air Force reorganized its research laboratories and divided the information technology responsibilities between the former Rome Laboratory, Rome, New York, and the former Wright Laboratory, Dayton, Ohio. Both locations perform information technology research for the Air Force and are supported by contracting directorates at the respective sites.

**Contracting at the Rome Research Site.** The contracting officials and engineers at the Rome Research Site reviewed research contracts in accordance with the Acting Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) memorandum. Contracting officials were aware of the year 2000 issues before the release of the Assistant Secretary's memorandum, and they coordinated with the Rome program managers and engineers to ensure that year 2000 compliant language was in all statements of work. The Rome contracting directorate had awarded 121 information technology contracts for FY 1998 at the time of our audit. The auditors judgmentally selected and reviewed 10 of the 121 contracts and determined that each contained the appropriate year 2000 provision, as required.

The Operational Contracting Branch supports the Rome Research Site by purchasing vendor-supplied hardware items. The items consist primarily of computer hardware ordered by General Services Administration contracts. Discussions with officials at the Operational Contracting Branch determined that General Service Administration contracts require acquisition items to be year 2000 compliant.

**Contracting at the Wright Research Site.** AFRL contracting officials at the Wright Research Site were responsible for issuing contracts for information technology research, while Aeronautical Systems Center, Air Force Materiel Command, contracting officials were responsible for issuing contracts for hardware and software.

Although information technology research program managers and engineers were required to review ongoing research programs for year 2000 compliance, Wright Research site contracting officials had not reviewed the existing information technology research efforts for year 2000 compliance. Based on the AFRL program managers' and engineers' reviews, the engineers would request contracting officials to modify contracts for year 2000 considerations, where required. For future research contracts, Wright Research site contracting officials revised the procedures for developing procurement strategies to require year 2000 considerations from contract requesters before contract award.

The Operational and Central Support Contracting Division at the Aeronautical Systems Center provides hardware and software contracting support to AFRL. The Operational and Central Support Contracting Division issued a memorandum on April 9, 1998, that directed contracting officers to include the Federal Acquisition Regulation, Section 39.002, "Acquisition of Information Technology," year 2000 compliant language in all contracts and contract orders. In addition, contracting officers were required to ask the program managers or

## **Status of the Air Force Research Laboratory Year 2000 Program**

engineers whether existing contracts for hardware and software needed to be modified for the year 2000 compliance requirement. A review of the Operational and Central Support Contracting Division contract files and discussions with contracting officials indicated that the contracting officials had not complied with the policy memorandum, although the contracting officials were in the process of modifying the contracts.

### **Conclusion**

AFRL is behind the Management Plan schedule for inventorying infrastructure systems. However, we believe that AFRL established an effective process that should assist in minimizing any year 2000 date-processing problems.

### **Management Comments**

Although not required to comment, the Chief Information Officer, Air Force Research Laboratory, agreed with the report and offered minor changes, which were incorporated in this final report.

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## **Part II - Additional Information**

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## **Appendix A. Audit Process**

This report is one in a series being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. For a listing of audit projects addressing this issue, see the year 2000 webpage on IGNET (<http://www.ignet.gov/>).

### **Scope**

**Work Performed.** We reviewed and evaluated the AFRL progress in resolving the year 2000 computing issue at Wright-Patterson Air Force Base and the Rome Information Technology Site; compared the actions with the Air Force Materiel Command Year 2000 Program Management Plan; conducted discussions with technical and contracting officials; and evaluated year 2000 documentation, where available.

**DoD-Wide Corporate-Level Government Performance and Results Act Goals.** In response to the Government Performance and Results Act, DoD has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting those objectives. This report pertains to achievement of the following objective and goal:

- **Objective:** Prepare now for the uncertain future.
- **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. (DoD-3)

**DoD Functional Area Reform Goals.** Most major DoD functional areas have also established performance improvement reform objective and goals. This report pertains to achievement for the following functional area objective and goal:

#### **Information Technology Management Functional Area.**

- **Objective:** Provide service that satisfies customer information needs.
- **Goal:** Upgrade technology base. (ITM-2.3)

**General Accounting Office High-Risk Area.** In its identification of risk areas, the General Accounting Office has specifically designated risk in resolution of the year 2000 problem as high. This report provides coverage of that problem and of the overall Information Management and Technology high-risk area.

## **Methodology**

**Audit Type, Dates, and Standards.** We performed this economy and efficiency audit from May through June 1998, in accordance with the auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not rely on computer-processed data or statistical sampling procedures to develop conclusions on this audit.

**Contacts During the Audit.** We visited or contacted individuals and organizations within DoD and the Air Force. Further details are available on request.

**Management Control Program Review.** We did not review the management control program for this audit because the Secretary of Defense Letter of Assurance for FY 1997 recognizes the year 2000 issue as a material management control weakness area.

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## **Appendix B. Summary of Prior Coverage**

The General Accounting Office and the Inspector General, DoD, have conducted multiple reviews related to year 2000 issues. General Accounting Office reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil>.

### **Air Force Audit Agency**

The Air Force Audit Agency had conducted several audits related to Air Force Research Laboratory year 2000 issues. The audits listed below concern Phillips Laboratory and the Human Systems Center, which are now under the Air Force Research Laboratory due to the October 1997 reorganization.

Air Force Audit Agency Report No. 23098011, "Systems Assessments for the Year 2000 Program, Air Force Research Laboratory, Phillips Research Site, Kirkland Air Force Base, New Mexico," March 17, 1998.

Air Force Audit Agency Report No. 230970014, "Inventory Status of the Year 2000 Program, Phillips Laboratory, Kirkland Air Force Base," June 9, 1997.

Air Force Audit Agency Report No. 41097030, "Inventory Status for the Year 2000 Program, Human Systems Center, Brooks Air Force Base, Texas," May 29, 1997.

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## **Appendix C. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition and Technology  
Director, Defense Procurement  
Director, Defense Logistics Studies Information Exchange  
Under Secretary of Defense (Comptroller)  
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Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), Year 2000 Oversight and Contingency Planning Office  
Assistant Secretary of Defense (Public Affairs)

### **Department of the Army**

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Inspector General, Department of the Army  
Auditor General, Department of the Army

### **Department of the Navy**

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Auditor General, Department of the Navy  
Chief Information Officer, Navy  
Inspector General, Department of the Navy  
Inspector General, Marine Corps

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Commander, Air Force Materiel Command  
Auditor General, Department of the Air Force  
Commander, Air Force Research Laboratory  
Chief Information Officer, Air Force  
Inspector General, Department of the Air Force

## Appendix C. Report Distribution

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### **Other Defense Organizations**

Director, Ballistic Missile Defense Organization  
Chief Information Officer, Ballistic Missile Defense Organization  
Director, Defense Contract Audit Agency  
Director, Defense Information Systems Agency  
    Inspector General, Defense Information Systems Agency  
    Chief Information Officer, Defense Information Systems Agency  
    United Kingdom Liaison Officer, Defense Information Systems Agency  
Director, Defense Logistics Agency  
Director, Defense Security Assistance Agency  
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Inspector General, Defense Intelligence Agency  
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    Office of Information and Regulatory Affairs

Technical Information Center, National Security and International Affairs Division,  
    General Accounting Office  
Director, Defense Information and Financial Management Systems, Accounting and  
    Information Management Division, General Accounting Office

Chairman and ranking minority member of each of the following congressional  
    committees and subcommittees:

Senate Committee on Appropriations  
Senate Subcommittee on Defense, Committee on Appropriations  
Senate Committee on Armed Services  
Senate Committee on Governmental Affairs  
Senate Special Committee on the Year 2000 Technology Problem  
House Committee on Appropriations  
House Subcommittee on National Security, Committee on Appropriations  
House Committee on Government Reform and Oversight  
House Subcommittee on Government Management, Information, and Technology,  
    Committee on Government Reform and Oversight  
House Subcommittee on National Security, International Affairs, and Criminal  
    Justice, Committee on Government Reform and Oversight  
House Committee on National Security

## **Part III - Management Comments**

# Air Force Research Laboratory Comments



DEPARTMENT OF THE AIR FORCE  
AIR FORCE RESEARCH LABORATORY  
WRIGHT-PATTERSON AIR FORCE BASE OHIO 45433

31 Aug 98

MEMORANDUM FOR OFFICE OF THE INSPECTOR GENERAL, DoD  
400 Army Navy Drive  
Arlington, VA 22202-2884

FROM: AFRL/CCI

SUBJECT: Draft Audit Report on Air Force Research Laboratory (AFRL) Preparation for Year 2000 (Project No. 8AB-0030.00)

1 AFRL appreciates the thorough job the inspectors did in auditing AFRL's preparation for the year 2000. This report will provide all levels of the Air Force and DoD vital information demonstrating AFRL's diligence in resolving the date processing issues associated with the year 2000.

2 Attached are the management comments to the Draft Audit Report dated 27 July 1998. These comments were already provided electronically to your office for easier inclusion in the final report. If there are any questions about our comments, please contact the AFRL Y2K Program Manager, Major Michael J. Monroe, DSN 986-9756 or (937) 656-9756.

DENNIS F. MARKISELLO, Colonel, USAF  
Chief Information Officer

The signature is handwritten in black ink, appearing to read "Dennis F. Markisello".

1 Atch  
Comments

## Air Force Research Laboratory Comments

Final Report  
Reference

The following information is found in the AFMC Program Management Plan (PMP) section entitled Overall Year 2000 Infrastructure Plan of Attack. "MAJCOMs, FOAs, DRUs, and their subordinate units follow this three-phase process to manage their Y2K mission risks. This process examines both centrally and locally managed items you depend upon from the 'how do they affect my mission' standpoint." The dates for these phases are as follows:

Inventory 31 Mar 98      Assessment 30 Nov 98      Implementation 31 May 99

### p. i    Executive Summary

#### Audit Results:

2nd sentence: Should now read, "The Air Force Research Laboratory has met all required timeframes of the AFMC Y2K Program Management Plan. ."

4th sentence: Should now read, "As a result, the AFRL has an effective effort underway for minimizing any year 2000 date-processing problem."

### p. 2    Audit Background

#### AFMC Y2K PMP:

Revised

3rd sentence: Should now read, "...discusses both Automated Information Systems/Management Information Systems (AISs/MISs) five-phased approach and the infrastructure three-phased approach.

Last sentence: Should now read, "Both approaches are discussed as follows."

p. 3    Add a header before the first bullet in five-phase approach that reads "Air Force AIS/MIS Approach"

Added

p. 3    Add a header that reads, "Air Force Infrastructure Approach" and include the following information before the paragraph entitled "AFRL."

Added

(The following information is quoted from AFMC Y2K PMP (p 135-138) and describes the three-phase infrastructure process and the actions required by the PMP.)

#### *Inventory Phase*

##### Purpose

Discover scope of problem affecting an organization

##### Actions

Develop inventory of affected items  
Identify mission risks

## Air Force Research Laboratory Comments

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These two actions are interdependent. You can't simply go out and count all the computer controlled things in your organization, you need to start by looking at your mission and focusing on the computer-controlled, date-cognizant items you depend upon.

Throughout the phases, you'll track resolution status of the items you identified and manage the mission risks.

Determine the item's operational impact to your mission. Use the Mission Criticality Definitions in Chapter 0. The trial inventory of Scott Air Force Base revealed that mission criticality is in the eye of the beholder—everyone thinks his mission is critical. Mission Criticality Group I (Mission Critical) is for wartime critically or life threatening. Mission risks must be scrubbed at the base or wing or MAJCOM level *based upon operational impact* so you can effectively "rack and stack" fix priorities. Although the library's computerized check-out system is critical for their operation, it's not nearly as critical as the flight-line automated test equipment.

Inventory and identify risks from both centrally managed and locally managed items. Although the centrally managed items may be out of your control, they still impact your mission—you need to account for their failure.

Don't forget to examine leased equipment and services from external service providers. For example, call the local power company to ensure they'll continue to provide service.

You should record your inventory on the spreadsheet available from the Air Force Year 2000 web page (<http://year2000.af.mil>, under the infrastructure heading). It's a useful tool for managing your risks and is the key mechanism for reporting mission critical items (see reporting in Chapter 0).

Chapter 0 provides a limited list of potential Year 2000 impacts. Another resource is AFPPAM 91-214, "Operational Risk Management (ORM) Implementation and Execution." It describes the ORM process which can be used to perform a Year 2000 mission risk assessment. It is available on the World Wide Web at <http://afpubs.hq.af.mil/elec-products/pubs-pages>.

Exit criteria

Items identified

**Assessment Phase**

Purpose

Assess situation

Actions

Determine compliance

Determine the Y2K compliance of the items you identified. You probably can't tell if a computer-controlled, date-recognizing item is Year 2000 compliant just by looking at it. Whenever possible, use central sources of compliance information. Air Force-level functional

agencies will support MAJCOMs, FOAs, DRUs, and subordinate units by researching and sharing it through the Air Force Y2K Program Office.

Start your search for compliance information at the Air Force Year 2000 web page, <http://year2000.af.mil>. We continue to improve the amount and quality of the compliance and certification information available. When necessary, contact central managers and functional staffs to request compliance information that you can't find on the Air Force Web page (we will post information on centrally managed items and functional area items as it becomes available). Only as a last resort should field units spend resources to determine an item's compliance. Unfortunately, compliance information isn't always available—another reason why contingency plans are important. **Read the important information on product compliance in Chapter 0.**

It's important to understand the difference between Y2K compliance and Y2K certification. **Read the important information on product certification in Chapter 0.** There is no Air Force requirement to certify (test) every infrastructure item.

#### Mission risk assessment

Armed with compliance information, assess the mission risks identified in the inventory phase. Determine possible risk mitigation actions. For example, you can mitigate the risk from a failed traffic light by repairing the problem, posting a traffic cop at the light when it fails, temporarily installing stop and yield signs, or by ignoring the problem since the operational risk is low.

The Year 2000 problem is a lot like a natural disaster. The total impact of the problem won't be known until after midnight 31 Dec 99. It is highly likely trouble will strike regardless of our efforts. Operational planning must take Year 2000 problems into consideration. Commercial firms are already making contingency plans for fielding disaster recovery teams to bring computer systems back on line. Operational commanders need to do the same to meet the Year 2000 aspects within their area of responsibility.

#### Determine actions

Based upon the mission risk assessment, determine a course of action for each of the identified items or mission risks. Items can be fixed, replaced, or ignored based upon the operational mission risk. Prioritize resources to manage and resolve multiple Year 2000 infrastructure risks.

#### Exit criteria

Item compliance determined (if possible)

Resources prioritized

Actions planned

### ***Implementation Phase***

#### Purpose

Implement corrective actions

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### Actions

#### Document contingency actions

Document any contingency actions determined in the previous phase. Contingency actions can be documented in existing operational plans, operations center checklists, or catastrophic failure plans. Organizations must update disaster and catastrophic failure plans to include Year 2000-based scenarios.

Mission critical items must have their failure contingencies documented in an appropriate plan. There is no requirement for each item to have its own contingency plan.

Air Force wings and MAJCOMs must have Y2K-specific contingency plans (organizational plans, not to be confused with specific system contingency plans). Future versions of this document will identify minimum requirements for contingency plans.

#### Fix, replace, or ignore items (based on mission risk)

Fix, replace, or ignore items for which you are responsible. Ensure suppliers resolve problems on items they supply you--*demand results*.

Mission critical items must be fixed, replaced, or have their failure contingencies documented in an appropriate plan. Items with little mission impact (e.g., office word processing PCs have very little date risk) may be ignored. There is no Air Force requirement to fix every infrastructure item.

### Exit criteria

Item failure documented in an appropriate plan (operations plans, checklists, disaster plans, Y2K action plan, etc.)

Items fixed, replaced, or ignored.

(This ends the quoted material from the AFMC Y2K PMP.)

Page 5

#### p. 4 Status of the AFRL Y2K Program

2nd sentence: Should now read, "The Air Force Research Laboratory has met all required timeframes of the AFMC Y2K Program Management Plan..."

4th sentence: Should now read, "As a result, the AFRL has an effective effort underway for minimizing any year 2000 date-processing problem."

#### p. 4 Change header from "Awareness" to "AIS/MIS Awareness"

1st sentence: Should now read, "The AFRL has completed all required AIS/MIS Awareness actions required by the AFMC Year 2000 PMP."

#### p. 5 Change header to "AIS/MIS Assessment" to preclude further confusion.

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4th sentence: Should now read, "As a result, the AFRL has an effective effort underway for minimizing any year 2000 date-processing problem."

p. 4 Change header from "Awareness" to "AIS/MIS Awareness"

1st sentence: Should now read, "The AFRL has completed all required AIS/MIS Awareness actions required by the AFMC Year 2000 PMP."

p. 5 Change header to "AIS/MIS Assessment" to preclude further confusion

1st sentence: Should now read, "The Management Plan states that during the AIS/MIS assessment phase all AISs/MISs will..."

Last sentence: Should now read, "The AFRL has completed their assessment of their AISs/MISs and has determined that none of them met the AFMC PMP criteria for inclusion in the Air Force Automated System Inventory."

p. 5 Add header "Air Force Infrastructure Approach"

Bring "Inventory" out to left margin and make this header the same size as "Assessment" and leave information under this paragraph the same.

Bring header out to left margin and make this header the same size as "Assessment". Change header from "Assessing Systems...Impact" to "Infrastructure Assessment" and leave information under this paragraph the same.

Leave next two sub-paragraphs at the indented level. Leave rest of area the same

p. 6 Contracting

2<sup>nd</sup> paragraph, last sentence: Should now read, "...supported by contracting divisions at..."

p. 6 Contracting

Header now should read "Contracting at the Rome Research Site"

First sentence: Should now read, "The AFRL contracting officials at the Rome Research Site reviewed information technology contracts..."

Second sentence: Should now read, "language was in all statements of work."

p. 7

First paragraph, first sentence: Should now read, "The Operational Contracting Branch supports the Rome Research Site..."

Third sentence: Should now read, "officials at the Operational Contracting Branch determined..."

Second paragraph: Header and first sentence should now read, "Contracting at the Wright Research Site. The AFRL contracting officials at the Wright Research Site...research, while Aeronautical Systems Center (ASC) Operational and Central Support Division contracting officials..."

Third paragraph: first sentence: should now read, "... compliance, Wright contracting officials..."

Second sentence: Should now read, "Based on the Wright program managers'..."

Third sentence: Should now read, "...research contracts, Wright contracting officials..."

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Revised

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Revised

Fourth Paragraph, First Sentence: Should now read, "The Operational and Central Support Contracting Division at ASC provides .."

Second sentence: Should now read, "The Operational and Central Support Contracting Division issued..."

Last sentence: Should now read, "A review of the Operational and Central Support Contracting Division contract files..."

### p. 8 Conclusion

1st sentence: Should now read, "The Management Plan required AF organizations to complete AIS/MIS Awareness and AIS/MIS Assessment phases by ..." Add two sentences that should read, "The Management Plan further requires AF organizations to inventory and assess their particular infrastructure by 31 Mar 98 and 30 Nov 98, respectively. AFRL will be finished with their assessment phase two months in advance of the 30 Nov 98 Management Plan deadline."

2nd sentence: Should now read, "Review of AFRL identified that the laboratory is on schedule with the timeframes established in the Management Plan."

Suggest adding another sentence after the 2nd sentence that reads, "To further ensure AFRL stays on schedule, the Chief Information Officer has now tasked everyone in AFRL to review their areas of responsibility by first reading the AFRL Y2K Best Engineering Practices memo. This memo has since been added to the AFMC Y2K PMO's Best Practices page within their website."

Last sentence" Should now read, "We believe that the AFRL has established an effective process that should assist in minimizing any year 2000 date-processing problems."

AS I said earlier, if there are any questions, call or e-mail me.

Mike

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